I CLAIM

1. An apparatus for extracting power from the wave action of a body of water comprising:

at least one paddlewheel having opposing ends and positioned upon the surface of a body of water and having a horizontally oriented paddlewheel axis of rotation and blades extending radially relative to said axis of rotation,

a pair of support posts anchored to the floor of said body of water and projecting upwardly to extend above the surface of said body of water and aligned with each other parallel to said paddlewheel axis of rotation,

at least a pair of paddlewheel mounting arms each having first and second ends, and said first ends of said arms in each pair are secured to a separate one of said posts for rotation relative thereto about a common surge rotation axis parallel to said paddlewheel rotation axis, and said arms extend laterally from said posts above said body of water,

floats secured to said paddlewheel mounting arms remote from said first ends thereof,

couplings that mount said paddlewheel for rotation between said mounting arms and said floats to hold said paddlewheel axis of rotation above said surface of said body of water with some of said blades projecting into said body of water, and whereby wave action of said body of water rotates said blades to and fro in

opposite directions about said paddlewheel axis of rotation,

a pair of unidirectional drive mechanisms, coupled to said paddlewheel and arranged for engagement by rotation of said paddlewheel in opposite direction, whereby said unidirectional drive mechanisms are engaged to provide a driving output, one at a time, depending upon the direction in which said wave action of said body of water rotates said paddlewheel blades, and

a power transducer coupled to receive driving inputs from said unidirectional drive mechanisms.

2. An apparatus according to Claim 1 further comprising direction reversing gearing coupled to one of said unidirectional drive mechanisms and said power transducer is coupled to said other unidirectional drive mechanism through said direction reversing gearing.

3. Apparatus according to Claim 1 further comprising a flywheel coupled to receive inputs from said unidirectional drive mechanisms and to provide a power output to said power transducer.

4. Apparatus according to Claim 1 further comprising separate universal joints located between each of said unidirectional drive mechanisms and said power transducer.

5. Apparatus according to Claim 1 wherein said floats are joined to said mounting arms at said second ends thereof and said paddlewheel is mounted to said

mounting arms at locations between said first and second ends thereof.

6. Apparatus according to Claim 1 wherein said power transducer is an electrical generator.

7. Apparatus according to Claim 1 further comprising two pairs of mounting arms extending in opposite lateral directions from said support posts, and each of said pairs of mounting arms is rotatable relative to said support posts independently of the other pair and said pairs of mounting arms are coupled to separate floats, separate paddlewheels, and a separate pair of unidirectional drive mechanisms as aforesaid.

8. An apparatus for converting power from wave action in a body of water to useful energy comprising:

a pair of upright stanchions anchored to a stationary surface beneath said body of water and projecting upwardly above the surface of said body of water and said stanchions are aligned with each other transverse to a dominant direction of said wave action,

an elongated mounting arm extending laterally from each of said stanchions, and said mounting arms each have first and second opposing ends,

couplings that secure said first ends of said mounting arms to said upright stanchions at locations above said surface of said body of water for rotation about a common surge rotation axis,

at least one float attached to said mounting arms remote from

said first ends thereof whereby said float maintains said mounting arms above said surface of said body of water despite fluctuations in water level due to said wave action,

a paddlewheel having a paddlewheel axis of rotation and a plurality of blades extending radially relative thereto, mounted for rotation between said mounting arms whereby said float at all times maintains said paddlewheel axis of rotation above said surface of said body of water with some of said blades projecting into said body of water,

a pair of unidirectional drive mechanisms located on said paddlewheel and respectively engaged by rotation of said paddlewheel in each of two opposite directions about said paddlewheel axis of rotation,

a separate drive line coupled to each of said unidirectional drive mechanisms, and

an energy transducer that receives driving inputs alternatively from each of said separate drive lines.

9. An apparatus according to Claim 8 further comprising a pair of floats as aforesaid, and said floats are coupled to said second ends of said mounting arms.

10. An apparatus according to Claim 9 wherein said paddlewheel is mounted to said mounting arms at a position between said first and second ends thereof.

11. An apparatus according to Claim 10 further comprising a flywheel

interposed between said drive lines and said energy transducer, and wherein said energy transducer is comprised of at least one electrical generator.

12. An apparatus according to Claim 8 further comprising separate universal joints in each of said drive lines.

13. A wave energy transducer for converting energy of waves moving in a body of water to usable power comprising:

a pair of upright posts anchored relative to the floor of said body of water and extending upwardly above the surface of said body of water,

at least a pair of mounting arms having first and second ends,

mounting arm couplings rotatably connecting said first ends of each of said mounting arms in each pair to a separate one of said upright posts for rotation about a common surge axis of rotation,

at least one float secured to each pair of mounting arms remote from said first ends thereof to maintain said second ends thereof above said surface of said body of water despite fluctuations in the level thereof due to wave action,

a paddlewheel for each pair of mounting arms having a paddlewheel axis of rotation and a plurality of blades oriented radially thereto, and said paddlewheel is mounted between said mounting arms in each pair remote from said first ends thereof for rotation relative thereto, whereby said float at all times maintains said paddlewheel axis of rotation above said surface of said body of water with some of

said blades dipping into said body of water,

a pair of unidirectional drive mechanisms coupled to said paddlewheel at said paddlewheel axis, and said unidirectional drive mechanisms are arranged in opposition for mutually exclusive engagement with said paddlewheel and mutually exclusive disengagement from said paddlewheel depending upon the direction of rotation of said paddlewheel blades about said paddlewheel axis,

separate drive lines coupled to each of said unidirectional drive mechanisms to transmit driving outputs therefrom,

a rotary driven converter that receives separate driving inputs from said drive lines and provides a power output responsive thereto.

14. A wave energy transducer according to Claim 13 further including two pairs of mounting arms as aforesaid, each of said pairs of mounting arms having separate floats, a separate paddlewheel, separate pairs of unidirectional drive mechanisms, and separate drive lines as aforesaid.

15. A wave energy transducer according to Claim 14 further comprising at least one direction reversing mechanism located in at least one and fewer than all of said drive lines.

16. A wave energy transducer according to Claim 14 wherein said pairs of mounting arms extend in opposite lateral directions from said upright posts, and each pair of mounting arms is coupled for rotation to said upright posts independent of the

other pair of mounting arms.

17. A wave energy transducer according to Claim 16 wherein there is a separate universal joint in each of said drive lines.

18. A wave energy transducer according to Claim 16 further comprising a single flywheel, and all of said drive lines are connected to provide driving inputs to said flywheel.

19. A wave energy transducer according to Claim 17 further comprising separate unidirectional power transfer mechanisms interposed between each of said drive lines and said flywheel.

20. A wave energy transducer according to Claim 18 wherein said rotary driven converter is an electrical generator.